# Tuesday January 7, 1997

**LT18** (8:50-12:10)

Session 7A18

## Microstrip & Printed Antennas 2

Organizers: Doris Wu, John Huang
Chairperson: Doris Wu, Boulder Microwave Technologies, Inc.
Co-Chairperson: John Huang, California Institute of Tech.

**8:50**
***Recent Studies of the U-Slot Patch Antenna***
*K F Lee, **K M Luk, **K F Tong
*University of Missouri-Columbia
**City University of Hong Kong

**9:10**
***Techniques for Easing the Fabrication Tolerances of Shorted Microstrip Patch Antennas***
*R B Waterhouse, *D M Kokotoff, **J T Aberle
*Royal Melbourne Institute of Technology
**Arizona State University

**9:30**
***Surface Admittance of Arbitrarily Shaped Microstrip Antenna***
Takafumi Fujimoto, Mitsuo Taguchi, Kazumasa Tanaka
Nagasaki University

**9:50**
***Transversely Assembled Printed-Circuit and Integrated-Circuit Antenna Arrays and Applications***
Andrew J Parfitt
The University of Adelaide

**10:10**
***A Retrodirective Microstrip Antenna Array***
*Shyh-Jong Chung, **Kai Chang
*Chiao Tung University, Hsinchu
**Texas A&M University

**10:30 Break**

**10:50**
***Crank-Line Array Antennas***
*H Nakano, **K Hirose
*Hosei University
**Tokyo Denki University

**11:10**
***Integrated Strip Gratings on Top of Microstrip Antennas and Arrays for Low and Ultra-Low Cross-Polar Radiation***
N K Das, A Mohanty
Polytechnic University

**11:30**
***Radiation Properties of Planar Array Composed of Ring Microstrip Antennas***
M Haneishi
Saitama University

**11:50**
***Design of Omnidirectional Wraparound Microstrip Antennas for Cylinders with Small Radii***
Doris I Wu, Richard C Hall
Boulder Microwave Technologies, Inc.

**LT18** (13:30-16:10)

Session 7P18

## Microstrip & Printed Antennas 3

Organizers: Doris Wu, John Huang
Chairperson: John Huang, California Institute of Technology
Co-Chairperson: Doris Wu, Boulder Microwave Tech., Inc.

**13:30**
***A Circularly Polarized Printed Slot Array Fed by Coplanar Waveguide***
Koichi Ito, Shin-ichiro Matsuzawa
Chiba University

**13:50**
***A Ka-Band 0.5m Circularly Polarized Microstrip Reflectarray***
J Huang
California Institute of Technology

**14:10**
***Perforated Microstrip Patch Antennas***
L Shafai
University of Manitoba

**14:30**
***Design of Finite Array of Wideband Aperture-Coupled Microstrip Antennas***
B Chen, D G Fang, F Ling
Nanjing University of Science and Technology

**14:50**
***DBS Antennas : Present and Future***
Qun Wu, Daoli Sun
Harbin Institute of Technology

**15:10 Break**

**15:30**
***Characteristics of Single and Coupled Microstrip Antennas on Anisotropic Substrates***
*A G d'Assuncao, **J R S Oliveira
*Federal University of Rio Grande do Norte
**Federal Center of Technological Education

**15:50**
***The Synthetic Approach of Wideband Microstrip Antenna Design***
*Bocheng Zhu, **Wenhong Chen, *Shizhi Li
*Beijing Institute of Technology
**Institute of Command and Technology, COSTIND

# Tuesday January 7, 1997

**LT17** (8:50-12:30)

Session 7A17

## Antenna Measurements

Organizers: Nizar Sultan, Guy Seguin
Chairperson: Nizar Sultan, Canadian Space Agency
Co-Chairperson: Guy Seguin, McGill University

**8:50**
***Near-Field Measurement Deconvolution***
G Seguin, T J F Pavlasek
McGill University

**9:10**
***Radar Active Antenna and Complete Radar Chain Pulse Measurement in Compact Test Range***
D Carbonne, J M Lopez, D Belot, J Blouvac, C Sourdois
Centre Spatial de Toulouse

**9:30**
***Phase Retrieval Diagnostic in Bi-Polar Planar Near-Field Measurements***
Yahya Rahmat-Samii, Robert G Yaccarino
University of California, Los Angeles

**9:50**
***Fresnel to Far Field Transformation Using Least Squares Minimization and Equivalent Magnetic Sources Reconstruction***
Fernando Las-Heras, Bel╟n Galocha, Jos╟ Luis Besada
Universidad Polit╟cnica de Madrid

**10:10**
***Spherical Near Field Measurements at the David Florida Lab.***
*S R Mishra, *J G Dumoulin, *D Lee, **D Rensburg, *N Sultan, *G Seguin
*Canadian Space Agency, **Comdev Inc. Kitchner Ontario

**10:30 Break**

**10:50**
***Antenna Development and Evaluation Using a Compact Antenna Range***
L Shafai
University of Manitoba

**11:10**
***Focusing Effect of Radio Holographic Metrology in the Fresnel Region***
*Hiroyuki Deguchi, *Masanori Masuda, *Norio Miyahara, **Masato Ishiguro
*Mitsubishi Electric Corporation,
**Nobeyama Radio Observatory

**11:30**
***Microwave Antenna Measurements at NPL - Theory and Practice***
Peter McNair, David Gentle
National Physical Laboratory

**11:50**
***Antenna Measurements at the European Space Agency***
John Reddy
ESTEC

**12:10**
***Advance Calibration Techniques for Indoor Collimating Ranges***
V J Vokurka
Eindhoven University of Technology

**LT17** (13:30-16:30)

Session 7P17

## Six-Port Technology

Organizer: R G Bosisio
Chairperson: R G Bosisio, Ecole Polytechnique de Montr╟al
Co-Chairperson: S P Yeo, National University of Singapore

**13:30**
***Optimum Design of the Five-Port Circuit Used in mm-wave Digital Receiver***
Ji Li, Renato G Bosisio, Ke Wu
Ecole Polytechnique de Montr╟al

**13:50**
***Six-Port Digital Millimetric Receiver***
Yansheng Xu, Renato G Bosisio
Ecole Polytechnique de Montr╟al

**14:10**
***Nine-Port Network Analyzer Utilizing Six Power Detectors to Measure Scattering Coefficients of Two-Port Devices***
S P Yeo, M Cheng, C K Ang
National University of Singapore

**14:30**
***Broad Band Reflectometer Using Four Electric Probes***
Jose Margineda, Juan Munoz, Marta Rojo
Universidad de Murcia

**14:50**
***Power Measurements Made with the Six-Port in the Frequency Range 0.1-18 GHz***
Joseph Achkar, Marcel Valon
BNM-LCIE

**15:10 Break**

**15:30**
***On Wafer InP-HEMTs Transistor Evaluation for Microwave/ Millimeter-wave Frequency Doublers Using Six-Port Technique***
*A Rahal, **D Schreurs, *A Merza, *R G Bosisio, **B Nauwelaeres, ***M Van Rossum
*Poly-Grames
**K.U.Leuven
***IMEC

**15:50**
***High Power Single Frequency Network Analyzer***
Martin Caron, Cevdet Akyel, Fadhel M Ghannouchi
Ecole Polytechnique de Montreal

**16:10**
***Millimeter Wave Six-Port System Using NRD-Guide***
Tsukasa Yoneyama, Takahiro Tamae
Tohoku University

# Tuesday January 7, 1997

**LT16** (8:50-11:30)

Session 7A16

## Computational Techniques 2

Organizers: Wolfgang J R Hoefer, Poman So
Chairperson: Wolfgang J R Hoefer, University of Victoria
Co-Chairperson: Poman So, University of Victoria

**8:50**
***The PPS-Method for the FD-Calculation of Inductances of Unrestricted Lossless 3D-Structures Using a Scalar Magnetic Potential***
*Stefan Lindenmeier, **Peter Russer
*Ferdinand-Braun-Institut fuer Hoechstfrequenztechnik
**Lehrstuhl fuer Hochfrequenztechnik

**9:10**
***Hybrid Mode Matching Multiple Multipole Method for the Analysis of the Radiation Characteristics of Elliptically Corrugated Horns***
*E K┼hn, **A S Omar
*German TELEKOM
**Arbeitsbereich Hochfrequenztechnik

**9:30**
***Design of Electromagnetic Structures with TLM***
P P M So, J Herring, W J R Hoefer
University of Victoria

**9:50**
***A Simple Analytical Approach to Construction of Absorbing Boundary Condition for Modeling Unbounded Electromagnetic Structures***
Ke Wu
Ecole Polytechnique de Montr╟al

**10:10**
***Formulas for the Local Characterization of the Field Lines***
I R Ciric
The University of Manitoba

**10:30 Break**

**10:50**
***Analysis of a Folded Wire of Arbitrary Dimension Enclosed in an Electromagnetic Cavity***
H Rahman
Saint Louis University

**11:10**
***Generalized Treatment of Dielectric Waveguide Analysis in a Normalized Space***
Yoshihiro Emori, Tetsuya Mizumoto, Yoshiyuki Naito
Tokyo Institute of Technology

**LT16** (13:30-16:30)

Session 7P16

## Measured Equation of Invariance

Organizer: K K Mei
Chairperson: K K Mei, City University of Hong Kong
Co-Chairperson: Y L Chow, City University of Hong Kong

**13:30**
***Application of Fast Discrete Periodic Wavelets to Measured Equation of Invariance for 2-D Conducting Scatterings***
Y W Liu, K K Mei, K M Luk, K N Yung
City University of Hong Kong

**13:50**
***Measured Equation of Invariance for FD-TD Computations***
Alexander Heldring
Joint Research Institute of the European Commission, Ispra

**14:10**
***Electromagnetic Scattering and Radiation From Sub-Reflector by the Method of MEI***
Y L Luo, K M Luk, Y W Liu, K K Mei, Edward K N Yung
City University of Hong Kong

**14:30**
***The MEI Method - A Theoretical Justification***
Y L Chow, Y W Liu, K K Mei, K M Luk, K N Yung
City University of Hong Kong

**14:50**
***Recent Advances on the Integral Formulation of the Measured Equation of Invariance***
Juan M Rius
Universitat Politecnica de Catalunya (UPC)

**15:10 Break**

**15:30**
***Application of a Matrix Decomposition Algorithm to Speedup Computation of MEI Method***
R M M Chen, Yaowu Liu, Shirley S K Ng
City University of Hong Kong

**15:50**
***Measured Equation Invariance Method in Time Domain***
Y W Liu, K K Mei, K N Yung
City University of Hong Kong

**16:10**
***A PVM Based Parallel Sparse Matrix Equation Solver***
G F Niu, R M M Chen, S S K Ng, Y W Liu
City University of Hong Kong

# Tuesday January 7, 1997

**LT15** (8:50-12:10)

Session 7A15

## Scattering & Diffraction 2

Organizer: Wen Xun Zhang
Chairperson: Wen Xun Zhang, Southeast University
Co-Chairperson: Jhin- Fang Huang, National Taiwan Institute of Technology

**8:50**
***Scattering Analysis of Radar Targets***
D. X. Jin, D. G. Fang, S. M. Cui
Nanjing University of Science and Technology

**9:10**
***Numerical Diffraction Coefficients of Partly Coated Conducting Wedge***
Wen Xun Zhang, Ming Zhong
Southeast University

**9:30**
***The Over-Modes Propagation in Millimeter Waves V-Groove Guide***
*Kai Kang, *Wen Xun Zhang, **K F Tsang, **Wei Min Shi
*Southeast University
**City University of Hong Kong

**9:50**
***Analysis of Groove Guides by Using the Method of Lines***
*K F Tsang, *W M Shi, **W X Zhang, **K Kang
*City University of Hong Kong
**Southeast University

**10:10**
***Microwave Simulation of HF Ground Wave Back-Scattering from Ocean Waves***
Haipin Song, Tongyi An, Jinming Pei, Manshu Wang
East China Normal University

**10:30 Break**

**10:50**
***EMI Analysis of Transient Electromagnetic Wave to Multilayered Dielectric-Multiconductor Bus System***
Shouzheng Zhu, Jinming Pei, Tongyi An
East China Normal University

**11:10**
***Geometrical Modeling and Graphical RCS Computing Simulation for Complex Objects***
Tiejun Liu, Yong Chou, Dacai Shen
Beijing Institute of Environment Feature

**11:30**
***EMP Reflection and Diffraction Incident on A Small Circular Conductor***
Ying-Wem Su, Jhin-Fang Huang
National Taiwan Institute of Technology

**11:50**
***On the Radiation from Terrain Medium with Nonuniform Dielectric Profile***
Ying Lu, Shijie Lin, Wei Guo, Zuyin Zhang
Huazhong University of Science & Technology

**LT15** (13:30-16:50)

Session 7P15

## Scattering & Diffraction 3

Chairperson: H M Lee, Naval Postgraduate School
Co-Chairperson: Y Hwang, City University of Hong Kong

**13:30**
***UTD Prediction on Propagation Characteristics in Tunnels***
Y Hwang, Y P Zhang
City University of Hong Kong

**13:50**
***Calculating the RCS of a Coated Arbitrary Cavity by SBR***
Minggui Zhao, Changqing Xu
Nanjing

**14:10**
***Zero On-Axis Backscattering of An Anisotropic Impedance Coated Body of Revolution***
Hung-Mou Lee, Chen-Kuo Yu
Naval Postgraduate School

**14:30**
***Diffraction of Electromagnetic Wave by Circular Disk with Surface Impedance***
Kohei Hongo
Toho University

**14:50**
***Scattering of An Off-Axis 2D Gaussian Beam by A Multilayered Cylinder***
Zhensen Wu, Lixin Guo
Xidian University

**15:10 Break**

**15:30**
***Reconsturction of An Embedded 2-D Perfectly Conducting Object Within Dielectric Region***
S Y Shi, D B Ge
Xidian University

**15:50**
***Stimulated Scattering in Aerosol Nonlinear Optics***
A A Zemlyanov, Yu E Geints
Russian Academy of Sciences

**16:10**
***Electromagnetic Scattering from Conducting Rectangle : Fourier Series Entire Domain Formulation***
Yifan Gao
Xian Highway University

**16:30**
***Polygonal Model of RCS for Complex Targets***
Shunlian Chai, Demiao Yao, Zhunjie Mao
National University of Defence Technology

# Tuesday January 7, 1997

**LT14** (8:50-12:30)

Session 7A14

## Non-Radiative Dielectric Waveguide and Its Millimeter-Wave Applications

Organizer: Ke Wu
Chairperson: Ke Wu, City University of Hong Kong
Co-Chairperson: Tsukasa Yoneyama, Tohoku University

**8:50**
***Introduction to NRD-Guide***
Tsukasa Yoneyama
Tohoku University

**9:10**
***Studies of NRD Waveguide in China***
Jing-Feng Miao
Southeast University

**9:30**
***The Hybrid Planar/NRD Integration Technology : A New Concept***
Ke Wu
Ecole Polytechnique de Montr╟al

**9:50**
***NRD Guide Technologies and Their Applications at 60 GHz Band***
Futoshi Kuroki
Kure National College of Technology

**10:10**
***Power Combining Techniques in NRD-Guide***
Tsukasa Yoneyama
Tohoku University

**10:30 Break**

**10:50**
***Uniaxial Anisotropy Effect on the Non-Radiative Dielectric (NRD) Waveguide Performance***
*Amilcar Careli C╟sar, **Rui Fragassi Souza,
*University of Sao Paulo (USP)
**State University of Campinas (UNICAMP)

**11:10**
***Modeling and Design of NRD Tunable Circuits Using Ferrite Materials***
*Jifu Huang, *Philip Mambo, **Ke Wu
*Harris Farinon Canada
**Ecole Polytechnique de Montr╟al

**11:30**
***Fabrication of 60 GHz NRD-Guide FM-CW Radar for Motor Vehicle***
Hiroyuki Ishizaka
Hino Motors, Ltd.

**11:50**
***Design and Optimization of NRD-guide Components***
Francois Boone, Ke Wu
Ecole Polytechnique de Montr╟al

**12:10**
***High Performance Millimeter-Wave Module Using Single Mode NRD Guide Coupled with Planar Circuit***
Yohei Ishikawa, Toru Tanizaki, Hiroshi Nishida, Atsushi Saito
Murata Mfg.Co. Ltd.

**LT14** (13:30-16:50)

Session 7P14

## Millimeter, Submillimeter & Lightwaves 2

Organizer: Weigan Lin
Chairperson: Weigan Lin, Univ. of Electronic Science and Technology of China
Co-Chairperson: W B Dou, Southeast University

**13:30**
***Progress of MMW Ferrite Devices Research at SKL of MMWs of China***
W B Dou, Z L Sun
Southeast University

**13:50**
***Discontinuities in Millimeterwave Phase Shifter***
Liquan He, Zhaofeng Zhang, Yong Li
Southeast University

**14:10**
***Microwave Power Transmission Simulated at Millimeter-Waves by its Scale Model Systems***
Hongwei Liu, Weigan Lin, Zhendong Shi
University of Electronic Science and Technology of China

**14:30**
***Experimental Diffraction Radiation Oscillator***
Jiayu Chen, Yongchuan Zhang, Yuxiang Duan
University of Electronic Science and Technology

**14:50**
***Realization of Optical Wavelet Filter by Binary Optics***
Ming Ni, Zhi Ping Jiang, Qi Sheng Lu
National University of Defence Technology

**15:10 Break**

**15:30**
***Real-Time Closed-Loop Correction on Nonlinearity of MMW Wideband FM Generator***
Zhuming Chen, Yiyuan Ding
University of Electronic Science & Technology of China

**15:50**
***An Analysis of Far-Field Pattern of a Focal-Plane Array Antenna With Coma-free Lens***
W B Dou, Z L Sun
Southeast University

**16:10**
***94GHz Imaging Radar for Detecting Shape of Burden Distribution in Blast Furnace***
Yiyuan Ding, Jianyu Yang, Xiaobo Yang, Zhuming Chen
University of Electronic Science & Technology of China

**16:30**
***Typical Elliptic Curves as Boundaries of Static Fields***
Weigan Lin, Jianhua Zhu
University of Electronic Science & Technology of China

# Tuesday January 7, 1997

**LT13** (8:50-12:50)

Session 7A13

## RF & Microwave Circuits 2

Organizer: Shanjia Xu
Chairperson: Shanjia Xu, Univ. of Science and Technology of China
Co-Chiarperson: K C Li, The Hong Kong Polytechnic Uni.

**8:50**
***The Miniature Probe Coupled Evanescent Mode Waveguide Bandpass Filters***
Lin Li, Xiaohua Yun
Nanjing University of Science and Technology

**9:10**
***Combination of Edge-Element and Mode-Matching for Multi-Step Dielectric Discontinuity in Guiding Structures***
Shanjia Xu, Xinqing Sheng
University of Science and Technology of China

**9:30**
***Novel Optical Nonlinear Phenomenon in Dye Polymeric Gel***
*Xianmin Zhang, *Kangsheng Chen, **Yoshiharu Kagami,
**Gu Bum Park, **Jianping Gong, **Yoshihito Osada
*Zhejiang University, **Hokkaido University

**9:50**
***Multiresolution Analysis in the Microwave Components and Circuits***
Y M Song, D G Fang, C F Wang
Nanjing University of Science and Technology

**10:10**
***Finite Element Analysis of Non-Reciprocal Microwave Circuits***
J D Wen, Y X Huang
Nanjing University of Science and Technology

**10:30 Break**

**10:50**
***Dyadic Green's Functions for the Cylindrical Chirowaveguide***
H T Hui, Edward K N Yung
City University of Hong Kong

**11:10**
***Filter Synthesis with Genetic Algorithm and Constraints***
*S Peik, **Y L Chow
*University of Waterloo
**City University of Hong Kong

**11:30**
***Improved Slotted-Filter for Over-Mode Rectangular Waveguide***
Yaokun Qin, Yexin Yang
Shanghai Transmission Lines Research Institute

**11:50**
***Researches on Millimeter Wave Low Loss Coaxial Cables***
Qing Wan
Shanghai Transmission Lines Research Institute

**12:10**
***The Analysis of a Curved Coupler Structure Using Beam Propagation Method***
Ayhan Altintas, Erdem Ofli
Bilkent University

**12:30**
***New Approach to the Nonlinear Biharmonic Mixer Characteristics Analysis***
S V Melichov
Tomsk State Academy of Control Systems and Electonics

**LT13** (13:30-17:10)

Session 7P13

## RF & Microwave Circuits 3

Organizer: Masami Akaike
Chairperson: Masami Akaike, Science Univ. of Tokyo
Co-Chairperson: D Polifko, CIENA Corporation

**13:30**
***Microwave Filtering Devices Using Stripline Dual-Mode Ring Resonators***
Hiroyuki Yabuki, Michiaki Matsuo, Morikazu Sagawa, Mitsuo Makimoto
Matsushita Research Institute Tokyo, Inc.

**13:50**
***V Band Planar Type Dielectric Resonator Filter***
Yohei Ishikawa, Toshiro Hiratuka, Sadao Yamashita, Kenichi Iio
Murata Mfg. Co. Ltd.

**14:10**
***100 Gigabit per Second, Long Haul Fiber Optic Communication Systems***
David Polifko, Mike Fagen
CIENA Corporation

**14:30**
***Leaky-Mode Emission from Planar Circuits***
C-K C Tzuang, Kuo-Cheng Chen
National Chiao Tung University

**14:50**
***Microwave and Millimeter-Wave Planar Filters Based on Coplanar Waveguide and Slot-line***
*Y Noguchi, **K Wada, **I Awai, *J Ishii
*Kinki University, **Yamaguchi University

**15:10 Break**

**15:30**
***CAD Program Using a Modified Time-Domain Method and its Applications for Design and Analysis of Nonlinear Microwave Active Circuits***
*El-S A El-Badawy, **H A El-Motaafy, ***H M El-Hennawy,
****S H Ibrahim
*International Islamic University Malaysia(IIUM)
**HTI - Ramadan Tenth City, *** Ain-Shams University,
****MTC

**15:50**
***Chaos in Phase-Locked Loops***
David B Levey, Paul D Smith
University of Dundee

**16:10**
***Phase Noise Analysis of a 15-GHz-HFET-Oscillator***
G R Olbrich
Technische Universit╤t M┼nchen

**16:30**
***High Efficiency Power Amplifier with Travelling Wave Combiner and Divider***
Yu-On Yam, Chi-Wai Cheung
City University of Hong Kong

**16:50**
***Nanosecond Pulse Microwave Generator***
A I Klimov, V P Gubanov, S D Korovin
Siberian Division of Russian Academy of Sciences

# Tuesday January 7, 1997

**LT12** (8:50-12:30)

Session 7A12

## Microwave-to-Optical Polarimetry : Basic Concepts

Organizers: Wolfgang M Boerner, Ernst L┼neburg
Chairperson: Karl-J ε rg Langenberg, Univ. of Kassel
Co-Chairperson: Ernst L┼neburg, Int. for Radio Freq. Tech.

**8:50**
***Homogeneous and Inhomogeneous Sinclair Matrices***
*E L┼neburg, **W-M Boerner
*German Aerospace Research Establishment,
**University of Illinois at Chicago

**9:10**
***An Entropy Based Unsupervized Classification Scheme for Full Polarimetric Sar Data***
*E Pottier, **S R Cloude
*IRESTE, **Applied Electromagnetics Ltd.

**9:30**
***Detection of the Radar-Tracking Targets on Coefficients of Polarizable Anisotropy***
A I Logvin, V G Vorobiev, A I Kozlov
Moscow State Technical University of Civil Aviation

**9:50**
***Some Techniques for Obtaining a Stable Description of Backscattering Matrices' Polarization Invariants of Complex Radar Objects***
V N Tatarinov, S V Tatarinov, V I Karnychev
Tomsk State Academy of Control Systems and Radioelectronics

**10:10**
***Polarization Invariants of Plane Waves' Space Spectrum Under Scattering on Complex Radar Objects***
V N Tatarinov
Tomsk State Academy of Control Systems and Radioelectronics

**10:30 Break**

**10:50**
***On the Importance of Polarimetry in Modern Radar***
*E Krogager, **W M Boerner
*Danish Defence Research Establishment, **Uni. of Illinois at Chicago

**11:10**
***Studies of Interferometric Penetration into Vegetation Canopies Using Multifrequency Interferometry Data at JPL***
Scott Hensley, Ernesto Rodriguez, Bob Truehafft, Jakob Van Zyl, Paul Rosen, Charles Werner, Soren Madsen, Elaine Chapin
Jet Propulsion Laboratory

**11:30**
***Statistical Polarimetry for HF Skywave Radar***
*Stuart J Anderson, **W M Boerner
*Defence Sci. and Tech. Organisaton, **Uni. of Illinois at Chicago

**11:50**
***Polarization Structure of Antennas Near-Field***
V A Sarytchev,G B Katchalova
Holding Company "Leninez"

**12:10**
***Markov's Filtration of Radar's Polarized Signals***
E A Loutin
The Moscow State Technical University of Civil Aviation

**LT12** (13:30-16:30)

Session 7P12

## Microwave-to-Optical Polarimetry : Applied Concepts

Organizers: Wolfgang M Boerner, Ernst L┼neburg
Chairperson: Viktor N Tatarinov, Tomsk State Academy of Control Systems and Radioelect.
Co-Chairperson: W M Boerner, Univ. of Illinois at Chicago

**13:30**
***Application of the Electromagnetic Vector Fourier Diffraction Slice Theorem to Concrete Probing with Radar***
K J Langenberg, M Brandfass, A Pitsch, K Mayer
University of Kassel

**13:50**
***Simulation of SAR Imaging of Ship Turbulent Wake***
K Oumansour, Y Wang, J Saillard
Laboratoire SEI - IRESTE

**14:10**
***High Resolution Method with Polarization Diversity***
Y Wang, J Saillard
IRESTE-Laboratory S.E.I.

**14:30**
***Polarizable Measurements on Determination of the Characteristics of Detection of the Radar-Tracking Targets on a Background of Forestry Files***
V G Vorobiev, A I Kozlov, A I Logvin
Moscow State Technical University of Civil Aviation

**14:50**
***Space Spectra of Polarization Parameters of Electromagnetic Waves on Beyond-the-Horizon Propagation Paths***
V N Tatarinov, G S Sharygin
Tomsk State Academy of Control Systems and Radioelectronic

**15:10 Break**

**15:30**
***The Statistical Characteristics of Scattering Matrix Elements of Little Dimensions Targets on a Background of a Laying Surface***
A I Kozlov, A I Logvin, V G Vorobiev
Moscow State Technical University of Civil Aviation

**15:50**
***Radar Target Indentification Without Polarimetry?***
*Ernst Krogager, **William A Holm
*Danish Defence Research Establishment,
**Georgia Technology Research Institute

**16:10**
***Subterrain Object Mapping Using Polarimetric Scattered Fields***
P Luneau, G Y Delisle, V Sampath
INRS-Telecommunications

# Tuesday January 7, 1997

**LT11** (8:50-11:30)

Session 7A11

## Remote Sensing of Precipitation

Organizer: Alfred T C Chang
Chairperson: Alfred T C Chang, NASA/Goddard Space Flight Centre
Co-Chairperson: Gin-Rong Liu, National Central University

**8:50**
***Monitioring Freezing/ Thawing Terrain over Qinghai - Tibet Plateau Using Microwave Remote Sensing***
*M S Cao, **Alfred T C Chang
*Lanzhou Institute of Glaciology and Geocryology
**NASA/ Goddard Space Flight Center

**9:10**
***Evaluation of Non-Uniform Beam Filling Effect on TRMM Precipitation Radar Measurements***
Toshio Iguchi, Toshiaki Kozu
Communications Research Laboratory

**9:30**
***Spatial and Temporal Variability of Monthly Rainfall derived from SSM/I Data***
Alfred T C Chang, Long S Chiu
NASA/Goddard Space Flight Center

**9:50**
***Estimation of Mean Rain Rates from Instantaneous Rain Rates versus Histograms of Microwave Brightness Temperature***
Long S Chiu, Alfred T C Chang
NASA/Goddard Space Flight Center

**10:10**
***Applying the Ground-based Microwave Radiometers to Estimate the Rainfall Rate in Taiwan Area***
Gin-Rong Liu, Chuen-Chen Day, Tsung-Hua Kuo
National Central University

**10:30 Break**

**10:50**
***Algorithms for Retrieval of Monthly Rainfall Totals for TRMM and Eos AMSR***
*T Wilheit, *J Huang, *D Redmond, **A Chang, ***L Chiu, ****Y Hong
*Texas A&M University
**NASA/ Goddard Space Flight Center
***SAIC/ General Sciences Corporation
****Caelum Research Corporation

**11:10**
***Improvement of Passive Microwave Rainfall Retrievals by Visible/ Infrared Radiometry***
Peter Bauer, Lars Schanz
Deutsche Forschungsanstalt f┼r Luft- und Raumfahrt

**LT11** (13:30-16:10)

Session 7P11

## Advanced Image and Signal Processing for Remote Sensing

Organizer: Sadao Fujimura
Chairperson: Sadao Fujimura, The University of Tokyo
Co-Chairperson: Y Eric Yang, MIT

**13:30**
***Significance-Weighted Feature Extraction from Hyperspectral Data and its Application to Sensor Design***
Sadao Fujimura, Senya Kiyasu
University of Tokyo

**13:50**
***An Automated Method for Accurate Registration of Remotely Sensed Images***
*Hiroshi Hanaizumi, *Yutaka Kanemoto, **Sadao Fujimura
*Hosei University
**The University of Tokyo

**14:10**
***Evaluation of Interferometric SAR Unwrapping Algorithms***
*Masafumi Iwamoto, *Chiaki Satoh, *Kyosuke Kawabata, *Yoshihisa Hara, **Eric Yang, **Jin Au Kong
*Mitsubishi Electric Corporation
**Massachusetts Institute of Technology

**14:30**
***Estimation of Adjacent Effects Over the Coastal Zone by Reflectance and Polarization Analysis of Airborne Polder Images***
T Kusaka, S Sado, Y Kawata
Kanazawa Institute of Technology

**14:50**
***Ozone Layer Gas Profile Retrieval by a Satellite Sensor "ILAS" Aboard "ADEOS"***
Tatsuya Yokota, Yasuhiro Sasano
National Institute for Environmental Studies

**15:10 Break**

**15:30**
***SCANSAR Interferometry Simulation with EMSARS***
*C C Hsu, *Y E Yang, *J J Akerson, *L F Wang, *Y Zhang, *K H Ding, *J A Kong, **Y Hara, ***C R Kohler, ***T H Nguyen
*Massachusetts Institute of Technology
**Mitsubishi Electric Corporation-Kamakura Works
***Army Research Laboratory

**15:50**
***An Optical SAR Processor With Digital Input/Output For Quick-Look Applications***
Konstantin Litovchenko, Philippe Lemaire, Christian Barbier
Universit╟ de Li∑ge

# Tuesday January 7, 1997

**LT10** (8:50-12:30)

Session 7A10

## International Workshop "Related Correlation Effects in Optics and Condensed Matter Physics 1"

***(Sponsored by U.S. Army Research Office)***

Organizers: Zu-Han Gu, Mikael Ciftan
Chairperson: Zu-Han Gu
Co-Chairperson:Mikael Ciftan, A Maradudin, E Wolf
Presider : Zu-Han Gu, Surface Optics Corporation

***8:50 - 9:40***

***Speckle Correlations in Light Scattering From 1-D and 2-D Randomly Rough Metal Surfaces and Thin Films***
*Alexei A Maradudin, **Arthur R McGurn
*University of California , Irvine
**Western Michigan University

***9:40 - 10:30***

***Angular, Frequency, Time and Polarization Correlations of Scattered Waves***
Akira Ishimaru, Yasuo Kuga, Charlie T C Le, Tsz King Chan
University of Washington

***10:30 - 10:50***

***Break***

***10:50 - 11:40***

***Angular Correlation Function of Speckle Patterns Scattered from A One-Dimensional Rough Dielectric Film on a Glass Substrate***
Zu Han Gu, Jun Q Lu
Surface Optics Corporation

***11:40 - 12:30***

***Sensitivity of Far-field Speckle Pattern to the Small local Changes of the Rough Surface Geometry***
*M Josse, **Zu-Han Gu, ***Alexei A Maradudin
*CEA/CESTA
**Surface Optics Corporation
***University of California, Irvine

**LT10** (13:30-17:10)

Session 7P10

## International Workshop "Related Correlation Effects in Optics and Condensed Matter Physics 2"

***(Sponsored by U.S. Army Research Office)***

Organizer: Zu-Han Gu, Mikael Ciftan
Chairperson: Zu-Han Gu
Co-Chairperson:Mikael Ciftan, A Maradudin, E Wolf
Presider : E Wolf, Univ. of Rochester

***13:30 - 14:20***

***Effects of Coherence on the Spatial and Spectral Distribution of Energy in Radiation Fields***
Emil Wolf
University of Rochester

***14:20 - 15:10***

***Microscopic Models for Correlation Effects in Optical Physics***
G S Agarwal
Physical Research Laboratory, Ahmedabad

***15:10 - 15:30***

***Break***

***15:30 - 16:20***

***Source Size Evaluation by Spectral Measurements***
*F Gori, *M Santarsiero, *S Vicalvi, **D Paoletti,
**G Schirripa Spagnolo
*Universit╔ "La Sapienza"
**Universit╔ dell'Aquila

***16:20 - 17:10***

***Spectrum Shaping Using Three-Dimensional Antennas***
Anthony J Devaney
Northeastern University

# Tuesday January 7, 1997

**LT9** (8:50-12:10)

Session 7A9

## Analytical and Numerical Techniques in Photonics 1

Organizers: Kiyotoshi Yasumoto, Hung-chun Chang
Chairperson: Kiyotoshi Yasumoto, Kyushu University
Co-Chairperson: Hung-chun Chang, National Taiwan Univ.

**8:50**
***Boundary Integral Analysis of Form Birefringence and Polarization Beamsplitting Characteristics of Fused Biconical Optical Fiber Coupling Devices***
*Hung-chun Chang, *Szu-Wen Yang, **Cheng-Wen Wu
*National Taiwan University
**Chung Cheng Institute of Technology

**9:10**
***Full-Wave Coupled-Mode Theory of Nonlinear Fiber Coupler***
Kiyotoshi Yasumoto, Hiroshi Maeda, Naohiro Mitsunaga
Kyushu University

**9:30**
***FD-TD Method Based on the Principle of the Wave Digital Filters and its Application to Analysis of Optical Waveguide Devices***
*H Ikuno, *Y Naka, **A Yata, **M Nishimoto
*Kumamoto University
**Kumamoto University College of Medical Science

**9:50**
***3D BEM Analysis of Light-Beam Scattering from Pit and Emboss Mark Models of Optical Disks***
Toshitaka Kojima, Kenji Wakabayashi
Osaka Electro-Communication University

**10:10**
***Coordinate Transformation Approach to the Problem of Three Collinear Symmetrical Fibers***
Jian Hau Zhu, Weigan Lin
University of Electronic Science and Technology of China

**10:30 Break**

**10:50**
***Directional Wave Field Decomposition in Integrated Optics***
Hans Blok, Mathe Van Stralen
Delft University of Technology

**11:10**
***Degenerate Points and Guided Modes in Magnetooptical Waveguides***
Jaromir Pistora, Dalibor Ciprian, Roman Kantor, Romana Anyzova, Jaromir Seidl, Kamil Postava, Petr Nencka
Technical University Ostrava

**11:30**
***Multiple Scale Technique in Photonics***
Yijiang Chen
Australian National University

**11:50**
***Design Optimization of a Widened X-Branch Demultiplexer by Ion-Exchange in Glass at 1.31 and 1.523 um***
G L Yip, L J M Babin
McGill University

**LT9** (13:30-16:10)

Session 7P9

## Analytical and Numerical Techniques in Photonics 2

Organizers: Kiyotoshi Yasumoto, Hung-chun Chang
Chairperson: Kiyotoshi Yasumoto, Kyushu University
Co-Chairperson: Yasumitsu Miyazaki, Toyohashi Univ. of Technology

**13:30**
***Transfer Function Statistics of Multi-Mode Systems***
Harrison E Rowe
Stevens Institute of Technology

**13:50**
***Low-Loss Transition Design in Optical Dielectric Waveguides***
Tomohiro Mizuno, Mikio Tsuji, Hiroshi Shigesawa
Doshisha University

**14:10**
***Analysis of Bent single-Mode Slab Waveguides with Finite Cladding Thinkness by Coupled-Mode Theory***
Maria Mirianashvili, Kazuo Ono, Masashi Hotta
Ehime University

**14:30**
***Accurate Modal Solutions of Optical Waveguides by Finite Elements***
B M A Rahman
City University of London

**14:50**
***Dynamic Coherent Characteristics of Waveguide Type Optical Amplifiers Using Garnet Crystal Films***
Yasumitsu Miyazaki
Toyohashi

**15:10 Break**

**15:30**
***Efficient and Accurate Analysis of Photonic Devices with the Method of Lines***
R Pregla, E Ahlers, S Helfert
FernUniversit=t

**15:50**
***Scattering of Electromagnetic Waves by Multilayer Gratings with Periodic Surface-Relief***
Tsuneki Yamasaki, Takashi Hinata, Toshio Hosono
Nihon University

# Tuesday January 7, 1997

**LT8** (8:50-12:30)

Session 7A8

## Photonics Nonlinear Optics & Devices 1

Chairperson: P S Chung, City University of Hong Kong
Co-Chairperson: G L Yip, McGrill Univesity

**8:50**
***A Study of Bending Waveguide for Semiconductor Photonics***
Ching-Fuh Lin, Hsu-Feng Chou, Fuh-Hsiang Yang
National Taiwan University

**9:10**
***Fractional Correlation Through Joint Transform Correlator***
Yen Lo, Hsuan T Chang, Chung J Kuo
National Chung Cheng University

**9:30**
***Inversion Techniques for Dispersive Optical Medium***
An Ge, Paul A Richardson, Lakshman S Tamil
University of Texas at Dallas

**9:50**
***A Novel Theory of SHG in Optical Waveguides***
*N Hamelin, *Y T Chow, **P J Chandler
*City University of Hong Kong
**The University of Sussex

**10:10**
***Optical Waveguide in Silicon Using Diffusion***
E M W Wong, C F Lee, E Y B Pun, P S Chung
Optoelectronics Research Centre, City University of Hong Kong

**10:30 Break**

**10:50**
***A Rigorous Analysis of the Lightwave and Microwave Interaction in a Mach-Zehnder Electrooptic Modulator***
Philippe Zatta, Tchanguiz Razban
IRESTE

**11:10**
***Coherent Cross-Talk Statistics of Feedback Buffer Memories***
*D A C C Jayasinghe, **S J Madden, *W L R Perera, *P L Chu
*University of New South Wales
**Telstra Research Laboratories

**11:30**
***Study on TSSL as Logic Components Employed in Optical Information Processing and Photonic Switching System***
Zhijian Zhang, Yili Guo, Hanyi Zhang
Tsinghua University, Beijing

**11:50**
***Integrated Optical Flip-flops***
You-fa Wang
Merchant Marine College of Shanghai Maritime University

**12:10**
***Analysis of Chaos in Intracavity-Doubled Laser by Using Dimension-Reducing Method***
Dang Xiang, Zhenghong Jing, Ying Li
Jiading Campus of Shanghai University

**LT8** (13:30-16:50)

Session 7P8

## Nonlinear Optics & Applications

Organizer: E Herbert Li
Chairperson: E Herbert Li, University of Hong Kong
Co-Chairperson: B L Weiss, The University of Surrey

**13:30**
***Ultrafast Laser-Induced Structural and Electronic Changes in Solids***[+]
Eric Mazur, Eli N Glezer, Li Huang, J Paul Callan
Harvard University

**14:10**
***Optical Information Processing by Using Anisotropic Diffraction in $BaTiO_3$***
*Ming-Wen Chang, **Ching-Cherng Sun
*National Central University
**Chine Hsin College of Tech. & Commerce

**14:30**
***Ultrashort Optical Pulses: Applications, Measurements and Generation***
H K Tsang, L Y Chan, A H Liang, Y C Tong, Z Jiang, Zhijie Wang
The Chinese University of Hong Kong

**14:50**
***Interdiffused Non-Square Quantum Wells for Applications in Optoelectronics***
*K S Chan, **E Herbert Li
*City University of Hong Kong
**University of Hong Kong

**15:10 Break**

**15:30**
***Porosity Determation Equation for Porous Silicon***
De-liang Lian, K W Cheah
Hong Kong Baptist University

**15:50**
***Effect of Control Pulsewidth on the Switching Efficiency of Nonlinear Optical Loop Mirror***
W S Man, H Y Tam
The Hong Kong Polytechnic University

**16:10**
***Analysis of Initial Frequency Chirp and Soliton Interaction on Nonlinear Pulse Propagation in a Dispersion-Shifted Fiber***
P Shum, S F Yu, T I Yuk
University of Hong Kong

**16:30**
***Effects of Cascading Second-Order Nonlinearities on Third-Harmonic Generation***
Xue Lin Yang, Sheng Wu Xie
Shanghai Jiaotong University

[+]double time-slot (40 minutes)

# Tuesday January 7, 1997

**LT7** (8:50-12:50)

Session 7A7

## Bioelectromagnetic Image and Visualization

Organizer: Michio Miyakawa
Chairperson: Michio Miyakawa, Niigata University
Co-Chairperson: F Bardati, DISP Roma Tor Vergata Univ.

**8:50**
***Fundamental Study for Trans-body Imaging with Light***
Koichi Shimizu,Katsuyuki Yamamoto, Hokkaido University

**9:10**
***Reconstructed Images of Optical Tomography Using an Inversion Process***
M R Jones,S G Proskurin,I W Kwee,Y Tanikawa,S Mizuno, Yukio Yamada
Ministry of International Trade and Industry

**9:30**
***Real-time Reconstruction of NMR Images in NMR Fresnel Transform Technique***
Satoshi Ito,Yoshifumi Yamada,Yoshitsugu Kamimura
Utsunomiya University

**9:50**
***Virtual Images and Good Functioning of MR Equipments: Errors in Data Interpetration***
*A A Russo, **R Delia
*Italian National Research Council, **High Institute of Prevention and Work Safety Ionizing and Non-Ionizing Radiation Laboratory

**10:10**
***Feasibility of Temperature Retrievals from Radiometric Data Measured In Vivo***
*F Bardati, **P Tognolatti
*DISP Roma Tor Vergata Univ., **Universita dell'Aquila

**10:30 Break**

**10:50**
***Computation of Microwave Radiometric Weighting Functions for Industrial and Medical Applications***
K Ridaoui, B Bocquet, A Mamouni, Y Leroy
Institut d'Electronique et de Microelectronique du Nord

**11:10**
***Microwave Radiometric Imaging by Deconvolution and Wiener Filtering***
B Bocquet, S Mouty, R Ait-Abdelmalek, A Mamouni, Y Leroy
Institut d'Electronique et de Microelectronique du Nord

**11:30**
***Analysis, Pre and Post-processing of a Hyperthermic Treatment for a Heterogeneous Phantom Model in Three Dimensions***
*Y Kanai, **T Kashiwa, ***Y Saitoh, ***M Miyakawa
*Niigata Inst. of Tech., **Hokkaido Univ.,***Niigata Univ.

**11:50**
***Computational - and Experimental - Visualization of Electromagnetic Power Absorbed by the Human Body***
*S Hoshina, *M Miyakawa, **Y Kanai
*Niigata University, **Niigata Institute of Technology

**12:10**
***Measurement of Temperature and Blood Volume Change in Tissue During Hyperthermia Therapy by Impedance CT***
Katsuyuki Sakamoto, Kitasato University

**12:30**
***Light-Tissue Interaction and Evaluation of Color Information in Biomedicine***
*M Akimoto, **T Asaeda, *Y Miyata, ***T Kikuta, ***H Namiki
*Nippon Medical School, **Color Consultant, ***Waseda Univ.

**LT7** (13:30-15:10)

Session 7P7

## Medical Applications & Biological Effects 1

Chairperson: Koichi Ito, Chiba University
Co-Chairperson: R Van de Walle, Ghent University Hospital & University of Ghent

**13:30**
***Fast Motion Detection in Projection Reconstruction MR Imaging***
*R Van de Walle**, **I Lemahieu
*Ghent University Hospital
**University of Ghent

**13:50**
***Heating Characteristics of Multiple Coaxial-Slot Antenna for Interstitial Microwave Hyperthermia***
Lira Hamada, Takafumi Kitada, Rong Wang, Koichi Ito
Chiba University

**14:10**
***Improvement of Optical CT Image by PSF Deconvolution***
Yoichi Onodera, Yuji Kato, Koichi Shimizu, Katsuyuki Yamamoto
Hokkaido University

**14:30**
***Performance of Microwave Disinfector for Deactivating Bacteria***
Qun Wu, Daoli Sun
Harbin Institute of Technology

**14:50**
***Biological Effects of Cancer Cells Radiated by Ka-Band MMW***
*H Bai, **D G Zhang
*People's Hospital of Shenzhen
**Shenzhen University

**15:10 Break**